MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

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New updates in this issue:

- **Michigan Surveillance:** Influenza activity decreases to "sporadic" statewide.
- **National Surveillance:** Activity decreases further; one state reports widespread activity.
- **International Surveillance:** Pandemic flu is active in parts of Europe, North Africa, and South Asia.

******2009 Influenza A (H1N1) virus Updates******

Please continue to reference the MDCH influenza website at www.michigan.gov/flu for additional 2009 H1N1 information. Local health departments can find guidance documents in the MI-HAN document library. In addition, additional laboratory-specific information is located at the Bureau of Laboratories H1N1 page at http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-213906--,00.html.

International (WHO H1N1 2009 update 82 [edited], January 8): The most active areas of pandemic influenza transmission currently are in parts of central, eastern and southeastern Europe, North Africa, and South Asia.

In Europe, pandemic influenza transmission remains geographically widespread throughout the continent and there continues to be intense virus circulation in several countries of central, eastern, and southeastern Europe - particularly in Poland, Serbia, Ukraine, Georgia - where a high a intensity of respiratory diseases activity has been recently reported. Among countries testing more than 20 clinical specimens from sentinel sites in the past week, the greatest proportions of samples testing positive for influenza were observed in Greece (72%), Georgia (54%), Switzerland (49%), Portugal (48%), Germany (48%), Luxembourg (40%), Romania (30%), Poland (25%), and Albania (23%). In most of western and northern Europe, rates of ILI/ARI continued to decline substantially, and in many places have returned to near seasonal baselines. Sporadic cases of seasonal H3N2 influenza have been identified in Western Europe but in very small numbers. Crude mortality rates among most European countries, measured as the cumulative number of pandemic H1N1 influenza associated deaths per million population, appear to be within the same range as rates observed elsewhere in northern and southern hemisphere, suggesting a relatively consistent global pattern of mortality.

In North Africa and West Asia, limited data suggest that influenza transmission remains active. Although west Asia may have already experienced a peak in influenza activity, parts of North Africa continues to report increasing respiratory diseases activity, particularly in Egypt. Elevated levels of ILI activity and increased influenza virus detections were observed during November and December in Algeria and Morocco, but activity has likely peaked in the later.

In South Asia, pandemic influenza transmission remains geographically widespread and active across the subcontinent - particularly in northern India, Nepal, and in Sri Lanka - where an increasing trend in respiratory diseases activity was reported. In Southeast Asia, influenza transmission remains geographically regional to widespread; however, overall influenza activity appears to be low but variable. Localized increases in ILI were reported in parts of Thailand over the past three weeks. In Vietnam, after a period of substantial influenza transmission during September through November, activity declined significantly in December. In Laos and Cambodia, overall respiratory disease activity was reported to be decreasing during most of December.

In East Asia, influenza transmission remains widespread and active but appears to be declining overall. Influenza/ILI activity continued to decline in Japan, in northern and southern China, Chinese Taipei, and

Hong Kong SAR (China). Pandemic H1N1 is clearly still the predominant circulating virus but seasonal H3N2 viruses continue to circulate in very small numbers in northern China. Slight increases in rates of ILI were again reported in Mongolia.

In central Asia, there is evidence of declining rates of ILI/ARI since respiratory disease activity recently peaked in late November and early December in Uzbekistan and Kyrgyzstan, respectively.

In the Americas, both in the tropical and northern temperate zones, overall pandemic influenza activity continued to decline or remain low. In North America, peak influenza activity occurred during early, mid, and late October in Mexico, the United States, and Canada, respectively. In all three countries, as expected, a substantially greater number of cases were recorded during the fall and winter transmission period as compared to spring and summer transmission period. In Canada, after experiencing substantial influenza activity unusually early during the fall and winter period, rates of ILI have now dropped below the historical seasonal baseline.

In temperate regions of the southern hemisphere, sporadic cases of pandemic influenza continued to be reported without evidence of sustained community transmission. This suggests that the level of population immunity in areas that experienced intense, high-level transmission during a winter season is high enough to prevent sustained transmission from recurring during the summer when the virus is less transmissible.

The countries and overseas territories/communities that have newly reported their first pandemic (H1N1) 2009 confirmed cases or first deaths since the last web update (No. 81): none.

Region	Deaths*
WHO Regional Office for Africa (AFRO)	131
WHO Regional Office for the Americas (AMRO)	At least 6880
WHO Regional Office for the Eastern Mediterranean (EMRO)	708
WHO Regional Office for Europe (EURO)	At least 2554
WHO Regional Office for South-East Asia (SEARO)	1165
WHO Regional Office for the Western Pacific (WPRO)	1361
Total*	At least 12799

* The reported number of fatal cases is an under representation of the actual numbers as many deaths are never tested or recognized as influenza related.

******Influenza Surveillance Reports******

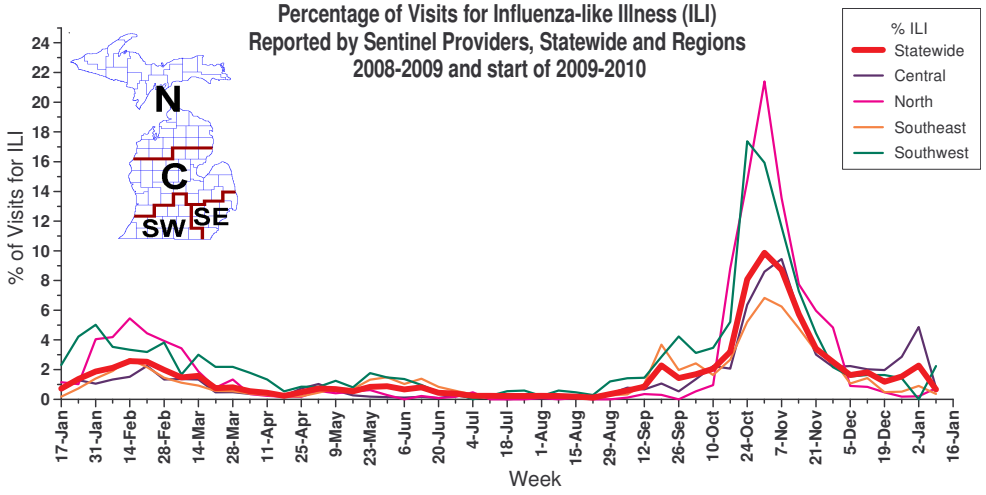
Michigan Disease Surveillance System: The week ending January 9 saw reports of individual influenza and 2009 novel influenza at low levels, similar to the previous week. Aggregate influenza cases increased from the previous week's levels; this post-holiday increase is expected as school reporting resumes. Cases reported this week are similar to what was seen during the same time period last year.

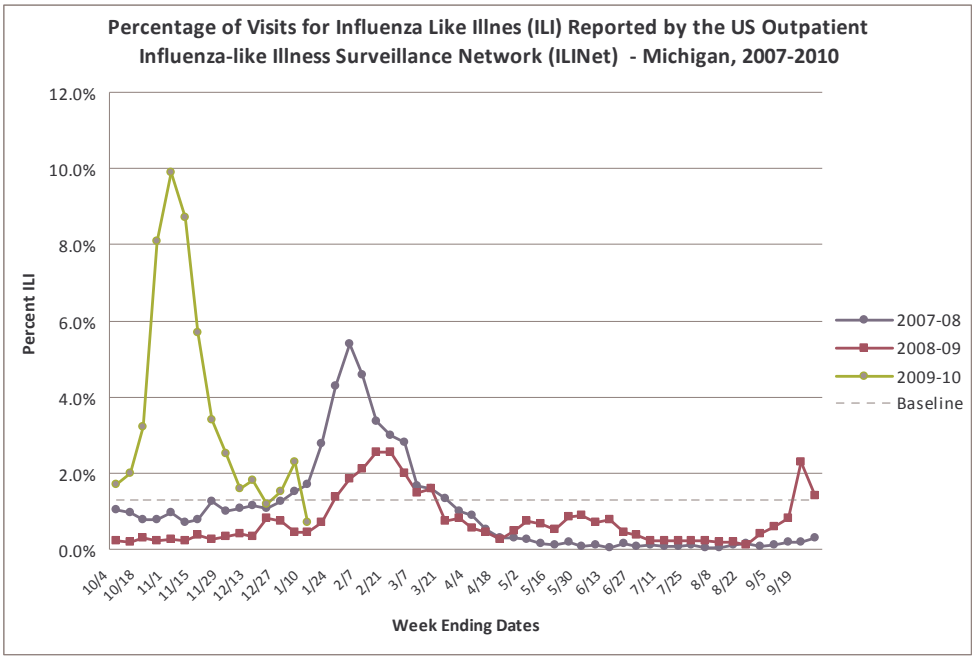
During the week of January 3-9, 2010, 5256 cases of flu-like illness and confirmed and probable cases of seasonal and novel influenza were reported in Michigan. 24 hospitalizations and 1 death associated with influenza were reported during this time. This report is updated every Tuesday by 5:00 pm and can be accessed at "Current H1N1 Activity" on this website: http://www.michigan.gov/h1n1flu.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints decreased slightly from the previous week's levels. Both constitutional and respiratory complaints are comparable to what was seen this time last year. In the past week, there was one constitutional alert in the C(1) Influenza Surveillance Region, and three respiratory alerts in the SW(1), C(1), and N(1) Influenza Surveillance Regions.

Over-the-Counter Product Surveillance: All OTC product sales held steady near levels seen during the previous week. Sales were comparable to levels seen one year ago, with the exception of a slight decrease in children's electrolytes sales.

Sentinel Provider Surveillance (as of January 14, 2010): During the week ending January 9, 2010, the proportion of visits due to influenza-like illness (ILI) decreased below baseline to 0.7% overall; 74 patient visits due to ILI were reported out of 11,101 office visits. Thirty-two sentinel sites provided data for this report. Activity increased in two surveillance regions: North (0.8%) and Southwest (2.2%); and decreased in the other two regions: Southeast (0.4%) and Central (0.8%). Please note that these rates may change as additional reports are received.





As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of January 9): During January 3-9, MDCH Bureau of Laboratories identified no influenza isolates. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 597 influenza isolates:

- 2009 Influenza A (H1N1): 596
- Influenza B: 1

13 sentinel labs reported for the week ending January 9, 2010. 1 lab reported sporadic numbers of flu A positives (N), and 12 labs reported no flu A positives (SE, SW, C, N). 1 lab reported sporadic influenza B positives (SE). RSV activity was noted by 5 labs (SE, SW, C, N).

Michigan Influenza Antigenic Characterization (as of January 14): One novel H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as

A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010 Southern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of January 14): Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at http://www.cdc.gov/H1N1flu/recommendations.htm.

Influenza-Associated Pediatric Mortality (as of January 14): Five 2009 H1N1 influenza-associated pediatric mortalities (SE(3), SW, N) have been reported to MDCH for the 2009-2010 influenza season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of January 14): Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and two outbreaks associated with positive influenza A tests (1C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 1 long term care facility.

As of January 14, 2010, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S – 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) have been reported.

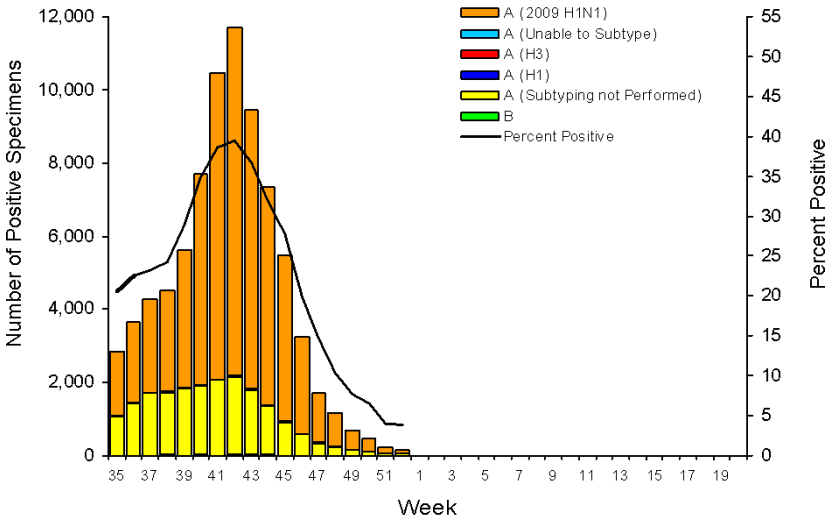
National (CDC [edited], January 8): During week 52 (December 27, 2009-January 2, 2010), influenza activity decreased slightly in the U.S. 161 (3.9%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. All subtyped influenza A viruses reported to CDC were 2009 influenza A (H1N1) viruses. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Four influenza-associated pediatric deaths were reported. All four deaths were associated with 2009 influenza A (H1N1) virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was 2.4% which is above the national baseline of 2.3%. Six of the 10 regions (3, 6, 7, 8, 9, and 10) reported ILI below region-specific baseline levels. One state reported geographically widespread influenza activity, 12 states reported regional influenza activity, Puerto Rico, the District of Columbia, and 17 states reported local influenza activity, the U.S. Virgin Islands, Guam, 19 states reported sporadic influenza activity, and one state reported no influenza activity.

During week 52, influenza B viruses co-circulated at low levels with 2009 influenza A (H1N1) viruses. All subtyped influenza A viruses reported to CDC this week were 2009 influenza A (H1N1) viruses.

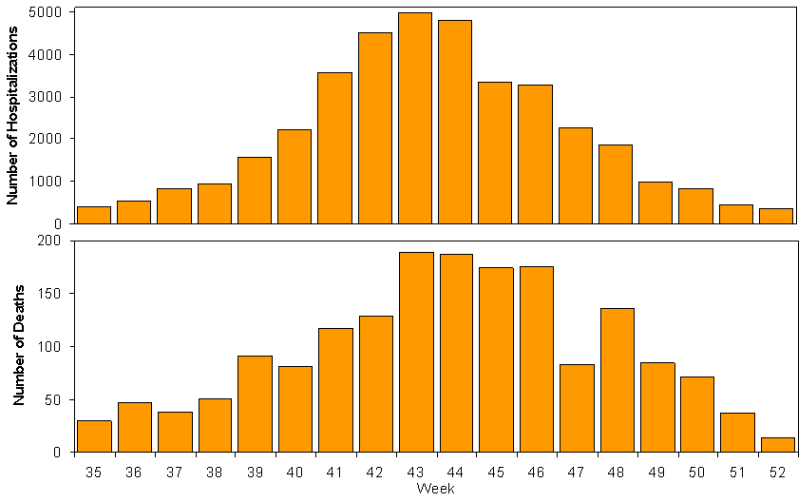
	Week 52
No. of specimens tested	4,180
No. of positive specimens (%)	161 (3.9%)
Positive specimens by type/subtype	
Influenza A	157 (97.5%)
A (2009 H1N1)	92 (58.6%)
A (subtyping not performed)	63 (40.1%)
A (unable to subtype)*	2 (1.3%)
A (H3)	0 (0.0%)
A (H1)	0 (0.0%)
Influenza B	4 (2.5%)

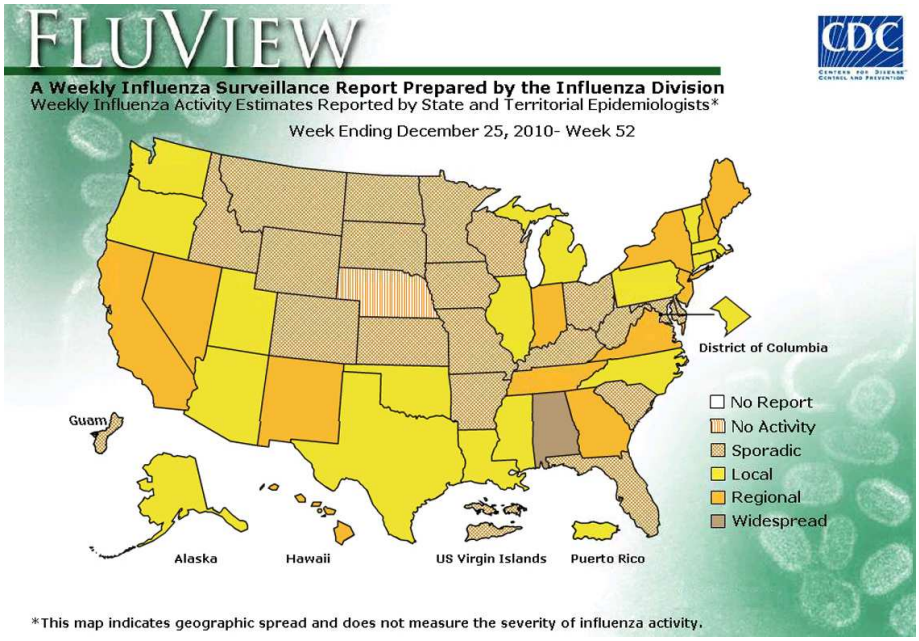
*Subtyping results for both specimens in this category were inconclusive because of low levels of viral RNA.

Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2009-10



Weekly Laboratory-Confirmed Influenza-Associated Hospitalizations and Deaths, National Summary, August 30, 2009 – January 2, 2010





To access the entire CDC weekly surveillance report, visit http://www.cdc.gov/flu/weekly/fluactivity.htm

From http://www.cdc.gov/h1n1flu/updates/us/#totalcases:

U.S. Influenza and Pneumonia-Associated Hospitalizations and Deaths from Aug 30, 2009 – Jan 2, 2010

Cases Defined by	Hospitalizations	Deaths
Influenza Laboratory-Tests**	37,778	1,735

**States report weekly to CDC either 1) laboratory-confirmed influenza hospitalizations and deaths or 2) pneumonia and influenza syndrome-based cases of hospitalization and death resulting from all types or subtypes of influenza. Although only the laboratory confirmed cases are included in this report, CDC continues to analyze data both from laboratory confirmed and syndromic hospitalizations and deaths.

International (WHO [edited], January 4): [During weeks 48-49], the level of seasonal influenza activity in most countries was low with only sporadic detections. China reported outbreaks of H3 as well as sporadic H1 and B activity. Sporadic seasonal influenza activity was observed in Afghanistan (H1,B), Australia (H3), Canada (H3), China Hong Kong Special Administrative Region (H3,B), Japan (B), Kenya (H3,B), Poland (B), the Russian Federation (H1,H3,B), Uganda (B), and United States (H1,H3,B). Guatemala, France - New Caledonia, and Uzbekistan reported no influenza activity.

MDCH reported **SPORADIC INFLUENZA ACTIVITY** to the CDC for the week ending January 9, 2010.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Avian and Novel Influenza Activity

WHO Pandemic Phase: Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

National, Poultry (AVMA, January 6): The California Animal Health and Food Safety (CAHFS) Laboratory has confirmed the presence of the H1N1 influenza virus in a turkey breeding flock in California's Central Valley. The CAHFS Laboratory confirmed 2009 H1N1 influenza infection on December 28, 2009 by PCR testing of swabs taken from the infected flock. There have been no clinical signs of illness in the flock other than a decrease in egg production. Although the State of California has not officially quarantined the facility, the producer has imposed a self quarantine until further testing has been completed. Samples were forwarded to NVSL for additional confirmatory testing.

This notice is available online at http://www.avma.org/public_health/influenza/new_virus/.

International, Swine (OIE [edited], January 9): Pandemic influenza A/H1N1 (2009); Country: Denmark
Date of first confirmation of the event: 09/01/2010; Date of Start of Event: 04/01/2010
Date of report: 09/01/2010; Date Submitted To OIE: 09/01/2010

Outbreak 1: Regional Veterinary and Food Administration: East; Municipality: Ringsted; Location: Jystrup
Species: Swine; Susceptible: 3200; Cases: - ; Deaths: - ; Destroyed: 0; Slaughtered: 0
Affected Population: A fattening herd with 3,200 piglets.

Outbreak 2: Regional Veterinary and Food Administration: East; Municipality: Holbæk; Location: Tølløse
Species: Swine; Susceptible: 3400; Cases: 950; Deaths: 3; Destroyed: 0; Slaughtered: 0
Affected Population: A sow herd with 750 sows, 250 slaughter pigs and 2,400 piglets.

Epidemiological comments: Source of the outbreak(s) or origin of infection: Unknown or inconclusive
Control Measures Applied: Quarantine to be applied, No Planned Control Measures
Animals treated: No; Vaccination Prohibited: No

International, Swine (OIE [edited], January 12): Pandemic A/H1N1 virus; Country: Italy
Date of first confirmation of the event: 10/12/2009; Date of Start of Event: 03/12/2009
Date of report: 12/01/2010; Date Submitted To OIE: 12/01/2010
Province: SICILIA; District: Palermo; Location: Luparello

Species: Swine; Susceptible: 13; Cases: 9; Deaths: 0; Destroyed: 0; Slaughtered: 1

Affected Population: Two animals showed influenza-like symptoms on 3 December 2009 and were found positive by real time PCR. On 10 December 2009, all the animals were sampled and 9 of 12 were found antibodies positive (HIT) (except one of the two first viral positive cases, which was slaughtered) and all of them were virus negative (PCR). The symptomatic animals recovered fully in few days.

Epidemiological comments: Source of the outbreak(s) or origin of infection: Unknown or inconclusive Control Measures: No Control Measures; Animals treated: No; Vaccination Prohibited: No

Michigan Wild Bird Surveillance (USDA, as of January 14): For the 2009 testing season (April 1, 2009-March 31, 2010), HPAI subtype H5N1 has not been recovered from any of the 111 Michigan samples tested to date, including 58 live wild birds, 39 hunter-killed birds and 14 morbidity/mortality specimens. H5N1 HPAI has not been recovered from 16,310 samples tested nationwide. For more information, visit the National HPAI Early Detection Data System at http://wildlifedisease.nbii.gov/ai/.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at http://www.michigan.gov/emergingdiseases.

Please contact Susan Peters at PetersS1@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

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MDCH Bureau of Laboratories – Anthony Muyombwe, PhD; Victoria Vavricka, MS

Table 1. H5N1 Influenza in Poultry (Outbreaks up to December 28, 2009)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 12/29/09)

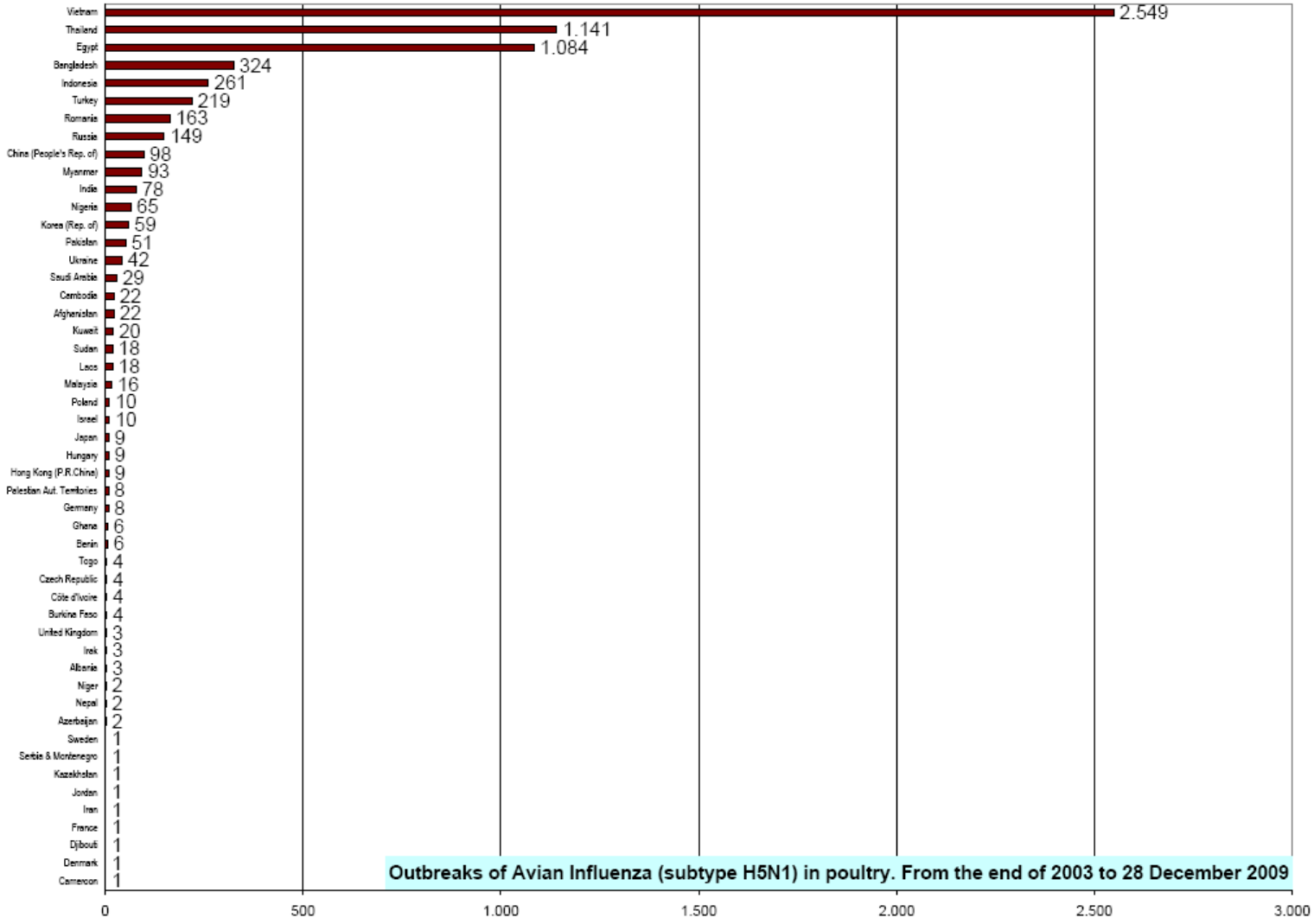

Table 2. H5N1 Influenza in Humans (Cases up to December 21, 2009)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_12_21/en/index.html Downloaded 12/22/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	9	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	90	27
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	0	0	141	115
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	112	57
Total	4	4	46	32	98	43	115	79	88	59	44	33	52	13	447	263